A Report
to the
Montana
Legislature

Performance Audit

Data Quality in the Montana Water Rights Information System

Department of Natural Resources and Conservation

November 2022

Legislative Audit
Division

21P-01

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§5-13-202(2), MCA

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We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Members of the performance audit staff hold degrees in disciplines appropriate to the audit process.

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November 2022

The Legislative Audit Committee
of the Montana State Legislature:

This is our performance audit of the data quality in the Water Rights Information System managed by the Water Resources Division within the Department of Natural Resources and Conservation.

This report provides the Legislature information about the data quality of water right record data in the Water Rights Information System. This report also includes recommendations to improve the data quality in the system by enhancing processes related to updating and recording water rights. A written response from the department is included at the end of the report.

We wish to express our appreciation to department personnel for their cooperation and assistance during the audit.

Respectfully submitted,

/s/ Angus Maciver

Angus Maciver
Legislative Auditor

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	Kerry Davant, Deputy Director
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	Anna Pakenham Stevenson, Administrator, Water Resources Division

Montana Legislative Audit Division

Performance Audit

Data Quality in the Montana Water Rights Information System

Department of Natural Resources and Conservation

A report to the Montana Legislature

Background

While the state owns the water within its borders, citizens can obtain a water right from the Department of Natural Resources and Conservation (DNRC) to use it for a beneficial purpose. Montana has about 400,000 water rights and DNRC stores information on these rights in the Water Rights Information System (WRIS). This system retains information on each water right's purpose, seniority, amount, location, and ownership. DNRC also stores all associated physical documents with a vendor. Eight regional offices across the state enter information from water right applications and updates into the WRIS. The Water Court, a major stakeholder, uses the data in the WRIS for its adjudication processes. DNRC uses data in the WRIS to determine the legal availability of water and inform decisions involving the state's water resources.

Director: Amanda Kaster

Program: Water Rights Bureau and Water Resources Regional Offices

Program FTE: 81

Program Revenue: $5.5M in FY22

Program Expenses: $7.4M in FY22

The Department of Natural Resources and Conservation relies on owners with varying knowledge of their water right for ongoing quality assurance in the Water Rights Information System. Strategic data quality management, public education, and improved electronic processes related to the system would result in lower costs, higher quality, and higher efficiency.

KEY FINDINGS:

Determining the Accuracy of Water Right Record Data Requires Both DNRC's Understanding and Observing Actual Water Usage

Throughout this audit, we assessed the accuracy of the information in the Water Rights Information System (WRIS). We found you cannot determine the overall accuracy of information in the WRIS from the database alone. DNRC's understanding of the data and observing the physical water right are necessary to determine if WRIS information is accurate to water usage. Owner input is valuable for estimating accuracy if the owner understands water right processes, but owners do not always understand these processes.

DNRC Does Not Have a Strategy to Maintain Data Quality Levels in the WRIS

DNRC reviews water right information when processing applications and updates. However, DNRC relies on owners to catch errors or identify changes after these processes. Though owner input can be valuable for estimating the accuracy of data in the WRIS, DNRC relies too heavily on owners to independently verify their water right information. The department does not track data quality in the WRIS besides processing timeliness, nor does it set data quality levels to ensure data can meet organizational or stakeholder purposes.

DNRC Should Formalize Public Outreach About Water Right Processes

Owner experience and input are valuable for estimating accuracy of the information in the WRIS if owners understand their water right. We surveyed water right owners and found over 20 percent of respondents do not understand key aspects of their water rights and over 40 percent of respondents never verify their water right information. Due to this, DNRC regional offices estimate over half of incoming documents contain missing or incorrect information, requiring further research to complete. Outreach and education to owners and property entities can streamline document processing.

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DNRC Can Save Money and Streamline Processes With Electronic Processes

The department maintains both the electronic WRIS and a paper record with all documents associated with water rights. DNRC scans all paper documents into the WRIS and then stores these documents with a private vendor. In addition, the department relies on paper forms for all applications and updates. When comparing the WRIS with the paper record, we found the WRIS generally has higher quality data than the paper record. We also found opportunities to enhance and implement more electronic processes that would increase efficiency and reduce costs.

RECOMMENDATIONS:

In this report, we issued the following recommendations:
To the department: 5
To the legislature: 0

Recommendation #1 (page 19):
System and Information Management
We recommend the Department of Natural Resources and Conservation establish and implement a data quality strategy for the Water Rights Information System.

Department response: Concur

Recommendation #2 (page 21):
Management and Operational Effectiveness
We recommend the Department of Natural Resources and Conservation establish an ongoing outreach and education process for owners and realty entities.

Department response: Concur

Recommendation #3 (page 25):
Cost Avoidance, Reduction, and Elimination
We recommend the Department of Natural Resources and Conservation establish the Water Rights Information System as the official record and transition to electronic processes.

Department response: Conditionally Concur

Recommendation #4 (page 26):
System and Information Management
We recommend the Department of Natural Resources and Conservation make scanned documents more functional by establishing an electronic transfer process and attaching additional labelling and identifying information.

Department response: Conditionally Concur

Recommendation #5 (page 29):
System and Information Management
We recommend the Department of Natural Resources and Conservation integrate GIS functionality for stakeholders.

Department response: Concur

Chapter I – Introduction and Background

Introduction

The Montana Constitution grants the state ownership of all water within its border. Citizens can obtain a water right through the Department of Natural Resources and Conservation (DNRC) to divert the state's water for a beneficial use. The Water Rights Bureau of the Water Resources Division within DNRC manages a centralized database of the state's water right record data for about 400,000 water rights across the state. This central record is statutorily mandated to contain all documents filed with water right applications, permits, changes, and certificates. This record is also mandated to serve as a reliable record of water right ownership.

Water Rights Information System

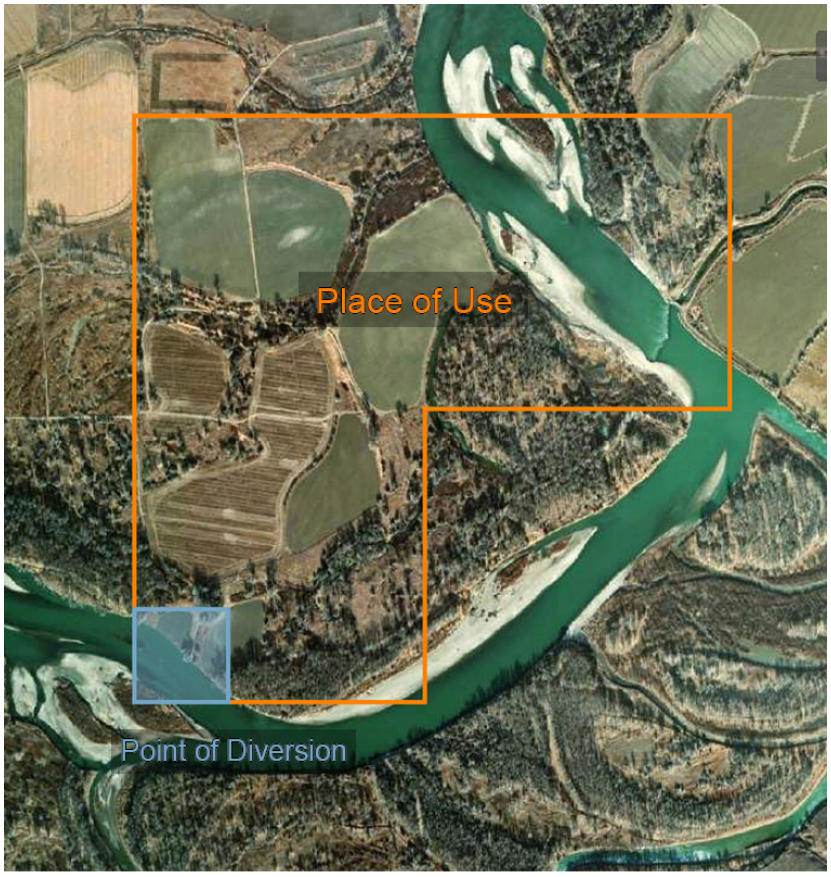
DNRC maintains water right record data in an electronic database named the Water Rights Information System (WRIS) and also stores all physical documents associated with water rights. The WRIS is used by the department, the Water Court for adjudication, and the public through a web-based query system that allows owners to view their water right information. DNRC enters and updates water right record data using the WRIS, which can then be queried for various water right information and reports. Physical documents filed with DNRC's offices are scanned then stored with a private vendor. DNRC stores over 8,000 boxes of water right files with a vendor located in Helena.

Water right records in the WRIS consist of many elements, including the following:

- **Purpose** – the beneficial use of the water. Purposes include domestic water rights for household use, irrigation rights, livestock, recreation rights, and other uses.
- **Point of Diversion** – location where the water is taken from the source, this can be a point on surface water or a well that diverts groundwater. This location is depicted using quarter subsections from the Public Land Survey System.
- **Place of Use** – land, facility, or site where the water is put to beneficial use. This location is depicted using quarter subsections from the Public Land Survey System.
- **Priority Date** – date that the water was first put to beneficial use. Montana uses a prior appropriation doctrine, which means precedence of water use is given to older, senior water rights.
- **Volume** – the maximum annual volume of water available for the listed purpose. Volume is measured in acre-feet per year.
- **Flow Rate** – the maximum rate that water is diverted or withdrawn from the source. This is commonly measured in cubic feet per second or gallons per minute (GPM).
- **Source** – the source of the diverted water. Sources include rivers, lakes, ponds, and groundwater.
- **Remarks** – notes made by DNRC that can be informational or identify issues that need resolution for the Water Court's processes.

In addition to these elements, the department tracks the ownership of the water right. Below is the map of a state water right that diverts water from the Yellowstone River for irrigation. The agency that owns this water right diverts water from the river in the blue point of diversion to irrigate areas within the orange place of use.

Figure 1
State Irrigation Water Right



Owner: State of Montana
Priority Date: April 15th, 1951
Source: Yellowstone River
Purpose: Irrigation
Volume: 320 Acre-Feet
Maximum Flow Rate: 4,500 GPM

Source: WRIS Query System – Modified by the Legislative Audit Division.

Water Rights Are Categorized as Either Statement of Claims or New Appropriations

Water rights in Montana are composed of two distinct groups, each primarily managed by a different entity. Water rights established before July 1, 1973 are called statements of claim and are adjudicated by the Montana Water Court. Water rights established on or after July 1, 1973 are called new appropriations and are administered by DNRC's New Appropriations Program within the Water Rights Bureau. This bifurcation exists because in 1973, the Montana Constitution established The Water Use Act, which defined how water rights could be changed and how new water rights could be acquired in the future. The water court's adjudication involves perfecting water rights by basin as of July 1, 1973. Perfecting a water right involves the court going through various decrees by basin, allowing water rights owners the chance to review their information and object if necessary. When the process is complete, the Water Court then issues a final decree to perfect the water rights in the basin.

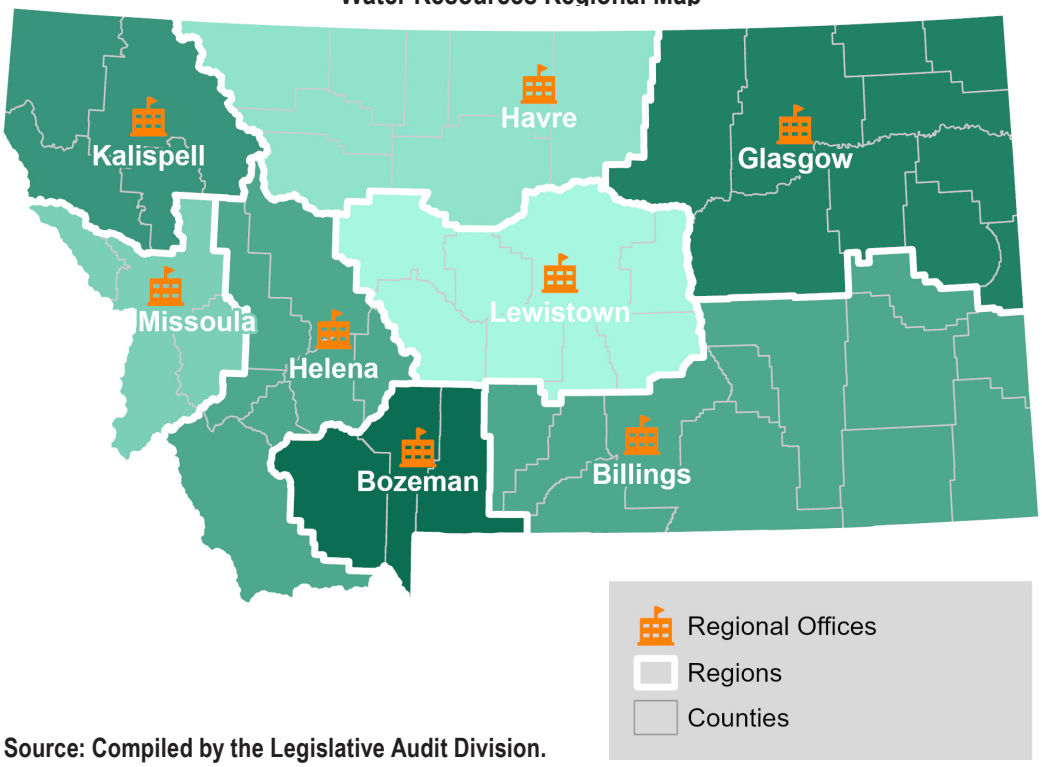
DNRC's role in adjudication with the Water Court is to collect information on historic use in each of the state's 88 water basins, ensure its accuracy, and store the information in the WRIS. Due to the time and resources required to adjudicate all pre-1973 water rights, several legislative initiatives have been put forth over the years to improve the process. Fifty years later, the Water Court adjudication process is ongoing, with DNRC supporting the Water Court throughout the decree process.

Water rights from after July 1, 1973, named new appropriations, are broadly broken down into permits and exceptions. Owners must go through a permitting process for any new surface water rights, or groundwater rights above a certain usage. However, there are exceptions where owners can go through a shorter, lower-cost process. Exceptions to the permitting process include ground water rights below a certain water usage, such as a well for a household, or water rights used for livestock in specific circumstances. If an owner wishes to change the point of diversion, place of use, purpose, or storage of their water right, they must file a change application and pay fees with DNRC. Change applications go through a review process to determine if the change will adversely affect other water rights. The user must offset any adverse effect by reducing other water usage. All changes and new appropriations are approved by DNRC and recorded in the WRIS.

Regional Offices Manage Water Rights in Their Region, With the Central Office Performing State-Wide Data Processing

DNRC's Water Resources Division divides the state into eight regions, as displayed in the map below. Each contains a regional office responsible for processing water rights and managing the data related to all water rights in its respective counties.

Figure 2
Water Resources Regional Map



Source: Compiled by the Legislative Audit Division.

An operations manager in Helena oversees the regional managers of each of these eight offices. Each regional office contains between four and eight FTE, who perform various division duties, including processing applications and updating records in the WRIS through an internal interface. These staff will also interact with owners to answer questions or research water right information.

Independently, the central office's Water Rights Bureau (17 FTE) in Helena guides management of the WRIS and runs various centralized data processing duties. This bureau houses staff who bulk process ownership updates bimonthly, create reports for the database, and generally address any issues identified with the WRIS. For the paper files, the records department in the central office is responsible for scanning and uploading all paper documents associated with water rights. The records department then handles transfers of paper files to and from the department's private vendor for storage.

DNRC Works With DOR to Detect Water Right Transfers, but This Process Is Often Scrutinized

The statute indicates that the centralized database should keep a reliable record of ownership. However, the department's ability to maintain updated data in the WRIS is limited by the information they receive from owners. When a water right is changed or the water right is sold to another entity, the new owners are required to submit forms and fees to DNRC to notify the department that the record must be updated. Historically, this reliance on the property owner resulted in DNRC being unaware of a significant percentage of ownership changes and, consequently undermining the accuracy of the database. To improve this process, Chapter 366 of the 2007 Regular Legislative Session enhanced DNRC's ability to collect updated information on existing water rights through coordination with the Department of Revenue (DOR) property transfer data.

In recent years, the process of updating water right ownership with DOR data has come under scrutiny. Consultants who help owners through water right processes and the Montana Legislature's Water Policy Interim Committee (WPIC) are concerned about this process creating ownership errors. Monthly, DNRC staff in the central office reconcile DOR property transfers with water ownership changes. Unless otherwise specified in the deed, the water right transfers with the sale of the property. This process is complicated because water rights and property rights are spatially defined differently: water rights are defined in square areas and DOR's property data consists of more granularly defined parcels with unique identifiers called geocodes. Figure 3 (see page 5) shows the overlap of the place of use for a water right with property lines. In this figure, the place of use for the water right overlaps with multiple properties, which are shown in green and outlined in white. Each property has a unique geocode, which can be used to identify the correct owner of the water right.

Figure 3
Overlapping Quarter Sections and Properties

Source: WRIS Query System – Modified by the Legislative Audit Division.

Determining which properties correspond to a water right's location can be ambiguous, requiring additional inquiry and research from DNRC to determine the correct ownership. Testimony during WPIC hearings has highlighted errors resulting from the geocoding process. Specifically, the geocoding process created several cases where incorrect owners were added to the water right. These errors prompted further legislation to define when water right ownership can be updated from DOR data. These also raised concerns from stakeholders and legislators about the quality of water right record data. DNRC believes the DOR processes have captured more water right transfers and increased the overall accuracy in the WRIS. Overall, the geocoding process enhances the data quality in the WRIS, resulting in more up-to-date information. Though the geocoding process has resulted in some errors, it is beneficial to the WRIS and quality of water right information.

Audit Scope

Due to ongoing concerns regarding water right record quality, we conducted a performance audit of data quality in the WRIS. Our audit focused on the quality of water right data in the WRIS relative to the paper documents and owner knowledge. Many DNRC processes affect quality assurance, especially regional office processes. Regional offices are the front line for entering data, updating data, and interacting with water right owners. Therefore, we focused on regional office processes in addition to examining the Water Rights Bureau that manages the WRIS. Our methodologies to measure data quality focused on the current, active water rights in the system.

When examining costs, we looked at costs from the previous 3-5 fiscal years (FY) as provided by the department. For the paper record, we examined vendor storage costs from FY2018 through FY2022. We also reviewed the Water Resources Division's mail costs provided from FY2019 through FY2022. For the electronic database, we reviewed the WRIS contract and amendments dating back to FY2017. During our audit, the internal interface of the WRIS was updated and the WRIS server hosting was shifted to DNRC from the State Information Technology Services Division (SITSD) located within the Department of Administration. We avoided methodologies examining this interface, as it was being updated continuously throughout the audit.

When reviewing testimony to WPIC, we primarily reviewed testimony from the current and previous interim. WPIC meetings in these interims discussed the data quality in the WRIS, highlighted processes where errors could occur, and discussed updates to the WRIS.

Audit Objectives

After assessment work, we developed the following objective for the performance audit:

- Determine the quality of the water right record data housed in the Water Rights Information System (WRIS).

Methodologies

During audit fieldwork, we completed the following methodologies:

- Reviewed applicable laws, policies, and procedures related to the WRIS and its processes.
- Reviewed best practices for managing databases.
- Reviewed and followed contracts and updates to the WRIS interface, forms, and reports.
- Reviewed Water Policy Interim Committee (WPIC) testimony, materials, and reports.
- Took a statistical sample of 250 water rights to test for consistency, completeness, and accuracy between the WRIS and the paper documents.
- Surveyed a random statistical sample of 1,500 water right owners, excluding government entities, asking them to verify information from the WRIS.
- Observed regional interaction and updates for four regional offices. Interviewed regional staff at each of these four offices.
- Observed scanning and upload process for water right documentation in the WRIS.

- Selected a small sample of water rights in the Helena area to physically visit and verify the information with owners.
- Identified and interviewed stakeholders such as water right owners, consultants, and the Water Court.
- Interviewed four other states on their water right database and processes: Colorado, Utah, Washington, and Wyoming.
- Interviewed DNRC staff regarding processes and findings.

Issues for Further Study

We identified several issues during fieldwork that may warrant further study. There is concern from DNRC and stakeholders that owners can circumvent state water right processes without penalty, undermining the accuracy and legality of water rights in Montana. Statute defines fines up to $1,000 a day for noncompliant water rights. However, the state has minimal enforcement infrastructure to ensure owners comply with their legal water right and their approved usage.

Additionally, DNRC, consultants, and owners have cited issues with the change application process for water rights. The process for changes is intensive and requires numerous supporting documents from owners. Hydrologists in DNRC perform rigorous calculations and modeling based on sometimes ambiguous historical estimates of water right usage to determine adverse effects of water right changes. DNRC does not consistently track water usage statewide and sometimes must rely on estimates of water usage for the change process. Also, owners cannot exceed historical volume through a change and will often see a decrease in their legal volume due to the more modern and efficient water uses. In tandem, the change process costs a minimum of $500 to change an aspect of current water use, but owners often also need to hire a consultant to help them through this process. There is concern that the difficulty and cost of the change process incentivizes owners to avoid the process altogether and change their water usage without notifying DNRC.

Lastly, DNRC does not have a clear process for abandonment of water rights. Statute defines that a water right can be assumed abandoned if it is not used for 10 years after a final decree from the Water Court. However, many basins in Montana do not have a final decree and water usage is not consistently measured or reported statewide. Therefore, unused water rights can remain active in the WRIS and reduce the legal amount of available water.

Chapter II – Water Right Data Quality

Introduction

Our audit objective was to determine the quality of water rights record data housed in the Water Rights Information System (WRIS). Data quality in this system affects decision making regarding water rights and stakeholder satisfaction. Data quality includes a variety of aspects: consistency, completeness, accuracy, among others. Accuracy is an important measure of quality, but we found that the accuracy of the record data relative to actual water usage could not be determined from the WRIS information alone. Determining the accuracy of the WRIS information relative to the physical use of water requires DNRC's understanding of water rights in conjunction with observing water usage.

Inconsistencies Exist Between the WRIS and Paper Record

We examined the consistency of information in the WRIS with the associated paper documents for a random, statistical sample of 250 water rights. The information reviewed for each water right was based on which elements of a water right are most important to stakeholders including landowners and the Water Court. We considered information consistent if the most recent information in the WRIS matched the most recent information listed in the paper files. We considered information inconsistent if the WRIS did not match the most recent paper file or if the most recent information was missing from either the WRIS or paper files. When information was missing, we noted whether it was missing from the WRIS or the paper record.

It's important to note that this methodology does not directly test the accuracy of the WRIS, rather this method tests the consistency of information between the two sources of water right information managed by DNRC. Some inconsistencies between the WRIS and the paper record are inaccuracies, such as when owner information is entered incorrectly in the WRIS. However, department management emphasized that the WRIS is updated more consistently than the paper files and some updates will not be reflected in the paper record. For instance, the department may update information in the WRIS based on a call with an owner or from research, especially addresses, additional contact information, and geocodes. Therefore, inconsistencies do not necessarily reflect an error. During the audit, program management and staff did not declare the WRIS or paper files as the official record, and some staff believed all changes needed to be reflected in the paper record. After audit fieldwork though, management indicated the WRIS was the official water right record. Overall, our review work identified inconsistencies between the WRIS and paper records maintained by the department.

Ownership Information Had Varying Levels of Consistency

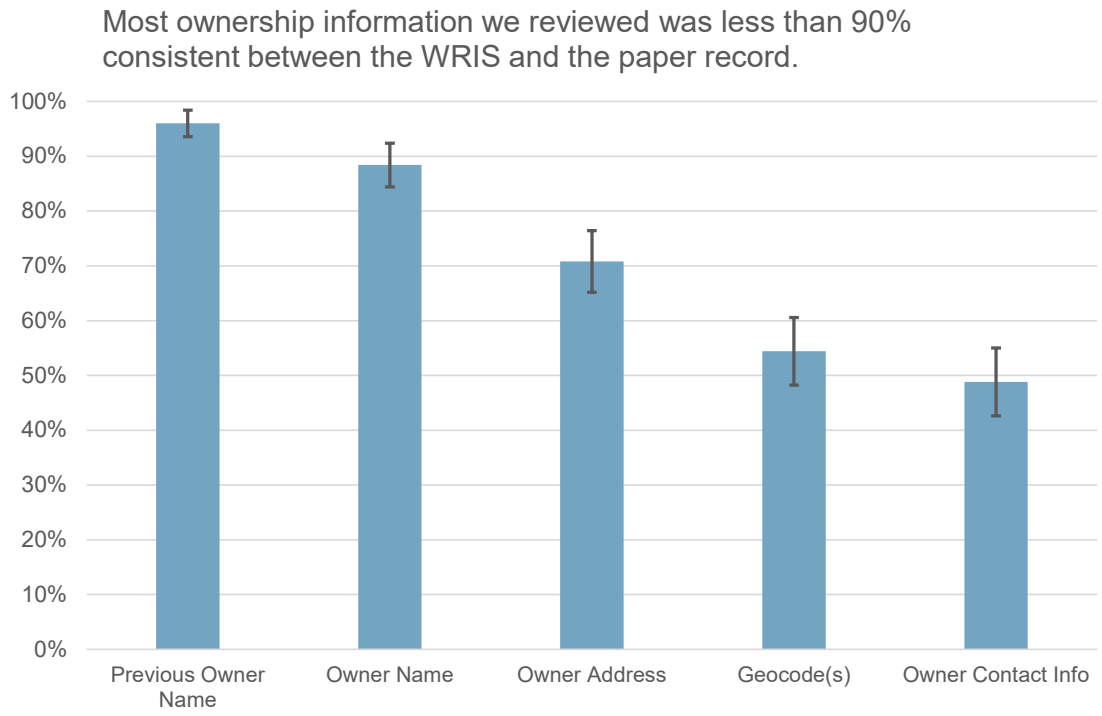
We first examined the consistency of the ownership information of water rights between the paper documents and the WRIS. We examined the following fields in both databases:

- Previous Owner Name(s) – first and last name of the previous listed owner.
- Owner Name(s) – first and last name of each listed owner.
- Owner Address – primary mailing address listed for the water right.
- Owner Contact Information – contact information other than the primary address.
- Geocode(s) – the listed geocode or geocodes of the property where the water right is used.

Section 85-2-421, MCA, states that the purpose of the statute surrounding the WRIS is to facilitate a reliable record of ownership. Ownership information is crucial for determining who is legally allowed water, contacting owners, and determining when a water right transfers. The following chart (see page 10) displays the results of our review, with most ownership information less than 90 percent consistent with the paper record. Again, inconsistencies do not necessary mean that the information is incorrect. Rather, inconsistencies show the most recent information in the WRIS and paper record did not match. Management emphasized that owner addresses, geocodes, and contact information can be updated in the WRIS without being indicated in the paper record. However, program staff did not always share this understanding. The chart also displays error bars representing the 95 percent confidence interval for all water rights.

Figure 4

Ownership Information Consistency



Source: Compiled by the Legislative Audit Division.

The owner's address is a crucial piece of ownership information that the department uses to track ownership and contact owners by mail. We found the owner's address in the WRIS was consistent with the paper record for 71 percent of our sample. If someone used both databases to look up the current owner's address, they would see different or missing information for nearly 30 percent of water rights. For the ownership information we reviewed, we found that information was more likely to be missing from the paper files than the WRIS. Ownership information was more often missing from the paper record because DNRC will keep ownership updates in office before adding the document to the associated file. During the COVID-19 pandemic, some ownership updates were kept in the office up to two years. When stored in the office, the recent ownership information on the document is not available if a stakeholder requests the water right file.

Outside of DNRC storing ownership updates, 45 percent of ownership updates in the paper file were represented by a fee statement, acknowledgment, or postcard. These forms of ownership updates usually did not contain owner contact information or information on the geocode associated with that water right. Therefore, recent geocode information was often present in the WRIS but not in the paper file. Owner contact information other than the primary address was the only field missing from the WRIS more than the paper documents. Regional office staff indicate they do not often add owner contact information other than the primary address into the WRIS, instead opting to look up the information from the scanned documents for the water right.

Information About the Water Right Was Over 90 Percent Consistent Between the WRIS and the Paper Record

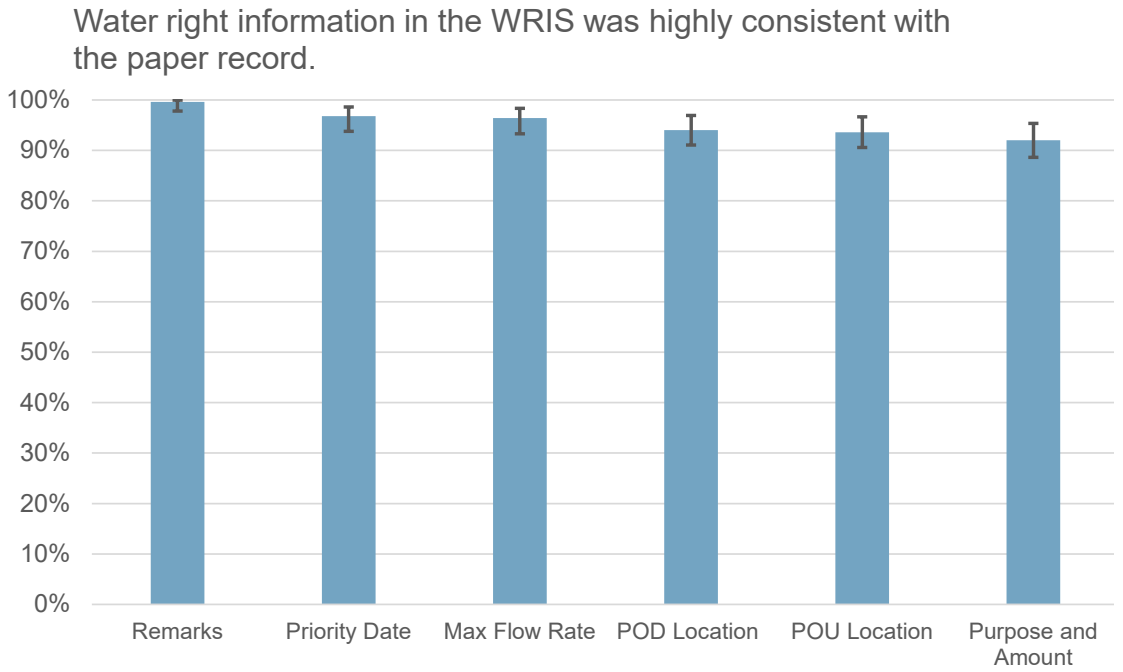
Besides the ownership information for each water right, we examined the consistency of water right information between the paper documents and the WRIS. These included the following fields for a water right:

- Priority date
- Purpose and purpose volume
- Point of diversion
- Place of use
- Flow rate
- Remarks

Information about the water right is important for determining the legal availability of water. Landowners can use this information to determine the water use in their community. The Water Court also uses this information to determine the historical use of each water right. These stakeholders will find different information between the WRIS and the paper record if this information is inconsistent. Figure 5 (see page 12) shows the consistency of water right information between the WRIS and paper record. The chart also displays error bars representing the 95 percent confidence interval for all water rights.

Figure 5

Water Right Information Consistency



Source: Compiled by the Legislative Audit Division.

Information about aspects of the water right were highly consistent between the WRIS and the paper files, with all fields above 90 percent consistency. Though highly consistent, differences between the WRIS and paper record can confuse users. For instance, about 5 percent of the point of diversion or place of use did not match between the WRIS and paper record. Users of the WRIS or the paper documents could incorrectly determine where the water right is used because of these inconsistencies. Additionally, if the amount of water for a purpose was inconsistent, the department and stakeholders could misinterpret the amount of legally available water.

Over 95 Percent of Important Water Right Documents Are Scanned

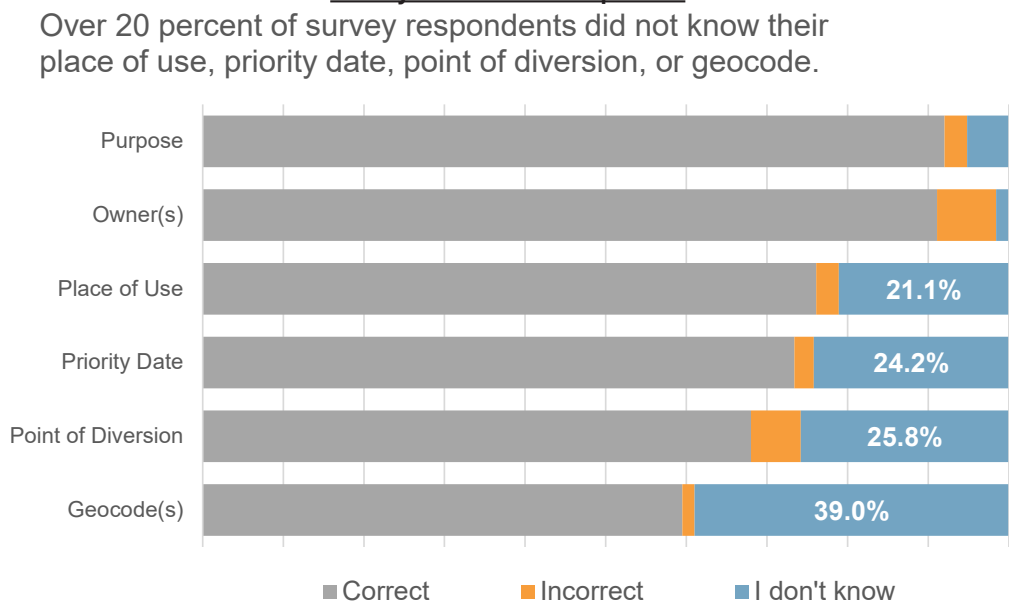
As part of our file review, we also checked whether important paper files were scanned into and accessible by the WRIS. We checked that the original water right application, most recent ownership update, and map were scanned. These documents contain original information submitted by the owner regarding their water right. If these documents are not scanned, it can be difficult to determine the original ownership and intention of the water right. We found that these documents were scanned for over 95 percent of water rights. Both the application and a map of the water right were scanned for 98 percent of water rights. The most recent ownership update was scanned for 95 percent of water rights.

Survey of Water Right Owners Indicated Owners Do Not Always Understand Their Water Right

We sent a survey to a random sample of 1,500 water right owners, excluding government entities. As part of this survey, we asked owners to verify information about one of their water rights we randomly selected. We ensured that we did not send multiple surveys to the same respondent and that each water right was only verified once. We asked owners to verify six pieces of information: priority date, purpose, owners, geocodes, point of diversion, and place of use. The geocode is not directly part of the water right, though the geocode is requested on ownership updates and used internally by the department to determine place of use. Survey respondents could mark the information as correct, mark the information as incorrect, or indicate they did not know the information. Owners could also write comments regarding the information, explaining why they put each answer. We asked owners to verify their information based on their knowledge and experience.

We sampled from all unique water rights owners, receiving a 29 percent response rate for our survey. However, 16 percent of survey addresses from the WRIS resulted in returns. This indicates that DNRC did not have the correct owner address for these water rights. We also performed a nonresponse analysis to ensure responses were representative of water right regions. We used our survey results to estimate accuracy based on owner knowledge and experience alone. This would demonstrate how well owners understand their information without input from DNRC. The following chart displays their responses.

Figure 6
Survey Verification Responses



Source: Compiled by the Legislative Audit Division.

Respondents generally understood the purpose of their water right and who should be listed as owners, rarely marking "I don't know" for these fields. However, ownership was the field marked most incorrect by respondents. Comments for this field indicated that respondents believed there should be either

more or less owners than listed in the WRIS. The listed point of diversion was the second-highest field marked incorrect by respondents, but their comments indicated they did not always understand the point of diversion for their water right. For instance, some owners would mark point of diversion incorrect for their well, believing only surface water could be diverted. Next, the priority date is one of the most important aspects of a water right, determining who should legally get water first in shortages and disputes. However, 24 percent of respondents did not know if their priority date is correct. Comments indicated that some owners obtained the water right when they purchased the property and do not know when it was originally established. As properties transfer ownership, it is crucial that important elements of water rights are recorded accurately and understood by the owner. While the geocode is not directly part of the water right, it is used by the department to refine the place of use and owner understanding of geocodes can increase their effectiveness.

Owners Are Generally Satisfied With Ownership Updates

As part of our survey, we asked owners about their satisfaction with the ownership update process. Over half of respondents who had been through an ownership update in the past two years indicated that they were at least satisfied with the ownership update process. Respondents also gave feedback on the ownership update process. Negative feedback indicated that the process could be confusing and not user friendly. However, positive responses emphasized that automatic ownership updates were beneficial, either through their title company or through the deed transfer. This feedback shows owners value involvement from their title company and the automatic ownership updates performed by DNRC using the Department of Revenue's data.

Physical Water Right Visits Gave Context to Limitations of Finding Accuracy

Finally, we also visited a nonstatistical sample of water rights in the Helena region. For seven water rights, we met with owners and discussed the information listed in the WRIS while observing the physical water right. Other methodologies provided valuable estimates of data quality, but we had to physically observe the water right to determine if the WRIS was accurate to usage. Before visiting a water right, we identified some errors using information in the WRIS alone. For example, if the place of use for a domestic water right did not include the house on the property. However, even if the WRIS information seemed correct, we found that owners and observation could still identify errors in the data. Some owners indicated that the water was not currently being used for a specific purpose or would show that the point of diversion for a well was outside of the listed quarter section shown on the map. Owner input was a valuable source of verification. However, determining the accuracy of the information required us to observe the water right itself, which is time-intensive and infeasible for a large number of water rights. Owners also often needed us to explain aspects of the water right, such as locations, and frequently required a map to facilitate conversations.

CONCLUSION

While our work identified a lack of a shared understanding within DNRC regarding the official record for a water right, we found high levels of consistency between the WRIS and paper files for many elements of a water right. Our work also found that the WRIS is generally higher quality than the paper record. However, survey responses and physical site visits revealed data quality limitations. Accuracy, an important element of data quality, is infeasible to directly measure due to the resources needed to physically visit all water rights in the state. Therefore, we identified alternative methods to improve accuracy and quality assurance in the WRIS.

Chapter III – Quality Assurance

Introduction

As part of evaluating quality in the Water Rights Information System (WRIS), we examined the Department of Natural Resources and Conservation's (DNRC's) strategy to ensure data quality in the WRIS. The department needs to have a data quality strategy that describes how the database is managed, establishes data quality levels, and determines how to evaluate these levels. Directly evaluating accuracy in the WRIS is difficult given the time and cost of physically visiting water rights. However, alternative methods such as evaluating consistency and consulting owners can estimate accuracy. In addition, DNRC should educate individuals responsible for submitting water right information. Applicants knowledgeable about water right processes can provide complete, high-quality information that makes processing water right documents efficient. Besides individual owners, title companies and realtors are influential in notifying and educating new property owners about their water rights. The department can improve the WRIS by implementing a data quality strategy in conjunction with ongoing education of the public.

Statute and Stakeholders Emphasize the Importance of Up-To-Date Information

Section 85-2-421, MCA, states that the purpose of the statute surrounding the central record of water rights is to facilitate a reliable record of water right ownership. In addition, stakeholders want up-to-date water right information. Through our survey, we found that water right owners want the department's online query system to provide up-to-date information and owners would like to be regularly reminded of their current water right information. The Water Court also requires the correct information and versions from the WRIS to perform its adjudication process accurately. A data quality strategy would define these thresholds and establishes processes to ensure quality in the WRIS.

DNRC Relies on Owners for Ongoing Quality Assurance in the WRIS

The department checks each document submitted by owners before entering the information into the WRIS. DNRC reviews the submitted documents, cross-references the information with third parties, and communicates with owners to verify unclear information. All applications are reviewed by multiple regional office staff, and the WRIS has several built-in verification methods that check values as they are entered. These review processes generally align with practices in other states. After the application or update is processed and added to the WRIS, DNRC relies on water right owners to regularly verify their water right information. If the owner notices an error with the information, DNRC also relies on the owner to notify the department.

As a stakeholder, the Water Court uses the WRIS information and scanned documentation for its adjudication processes. The Water Court has access to the WRIS through the same internal interface used by DNRC. The court and DNRC collaborate to create reports in the WRIS that query the correct version of water rights in a basin. For adjudication processes, the Water Court requires a version of the water right that has been recently examined by DNRC. In addition to the data in the WRIS, the Water Court uses scanned map images from the WRIS to identify water right locations. The Water Court and DNRC must work together to compile water right documents for each water right, including any

created maps. Both the department and the court rely on this information for their work. The Water Court requires accurate information to establish the historical record of water rights. DNRC uses the information in the WRIS to determine the legal availability of water and water use.

The Department Does Not Have a Consistent Strategy for Tracking Data Quality

Though the department relies on owners for ongoing quality assurance, DNRC has not established a formal strategy defining data quality thresholds that meet organizational goals or tracking data quality in the WRIS. Management and regional offices have varying ideas of what data quality is expected as they enter information into the WRIS. Some regional offices expect no errors when entering data in the WRIS, while others expect a certain percentage depending on the type of work. DNRC does not track the data quality levels in the WRIS except for processing timeliness. DNRC does not perform spot checks of existing information in the WRIS or regularly check with owners. Instead, DNRC relies on owners to independently and continuously verify their existing information, reporting any errors to the department.

Water Right Owners Have Varying Levels of Knowledge About Information Associated With Their Water Right

Since DNRC relies on owners to verify their water right information, we examined water right owners' capabilities to verify water right information through our survey. We asked owners to verify information on one of their water rights and answer questions on how frequently they verify their information. As stated earlier, over 20 percent of survey respondents did not know if their water right's priority date, geocode, point of diversion, or place of use was correct. These owners indicated they did not understand the notation or were too far removed from the original owner to know the correct information. Also, based on survey responses, we estimate between 36 and 46 percent of all water right owners never verify their water right information. Though owner input can be valuable for estimating the accuracy of water right information, relying exclusively on owners for ongoing quality assurance limits data quality in the WRIS.

...over 20% of survey respondents did not know if their water right's priority date, geocode, point of diversion, or place of use was correct.

Without a Data Quality Strategy, DNRC Does Not Know the Quality of Their Database

By not tracking data quality in the WRIS, DNRC can miss numerous errors and reduce stakeholder satisfaction. Our survey found that around 16 percent of recipient addresses were incorrect in the WRIS. In addition, around 12 percent of respondents indicated the ownership information listed in the WRIS was inaccurate. Without tracking data quality, it is difficult to understand the prevalence

of errors found in the database, reducing stakeholder satisfaction. For instance, geocoding errors presented to the Water Policy Interim Committee gained stakeholder attention and reduced satisfaction with these processes. We found geocoding processes beneficial, but it can be difficult to understand the overall effect of processes affecting data without holistically tracking quality. Beyond data quality, department or stakeholder decisions based on WRIS data may be incorrect due to the quality of data.

Department Efforts to Improve Data Quality May Not Be Effective

Without a data quality strategy defining how data should be managed, it is difficult to formalize processes to address data quality issues. In some cases, DNRC will delay addressing stakeholder concerns or targeting data quality improvements in the WRIS. For example, the Water Court identified an error where the WRIS would query the incorrect version of a water right for the court's purposes. During fieldwork, this error was not addressed by the department, though a strategy to fix the error had been presented. Management indicate they are now working with the Water Court on this issue. However, delays addressing data quality issues erode the Water Court's trust in the WRIS and create tension between the court and DNRC. Without a strategy for managing data, it is difficult to target data quality issues and improve stakeholder trust.

Criteria Emphasize an Organization Needs a Data Quality Strategy

Best practices, including federal frameworks and industry standards, indicate that an organization should have a formalized data quality strategy for each database it operates. This strategy should establish how data will be managed, define desired data quality levels, and establish procedures to evaluate data quality regularly. Some other states we interviewed evaluate their data by performing spot checks or building reports in their database to check data quality aspects. However, best practices do not define specific evaluation methods or levels for data quality. Instead, the department should define desired data quality levels based on its objectives and any potential risks to data quality.

RECOMMENDATION #1

We recommend the Department of Natural Resources and Conservation establish and implement a data quality strategy for the Water Rights Information System that defines desired levels for data quality that are regularly evaluated.

DNRC Interacts With Owners During Application and Update Processes

DNRC will review the water right information during the initial application and update processes, contacting owners if any questions arise. Realtors or community entities, including title companies, subdivision managers, and homeowners' associations, can help fill out and submit these forms for owners. These entities will assist owners by submitting water right transfers, applications, and other forms. Once the application or update is processed, DNRC does not contact the owners or organization unless required. DNRC assumes owners will continue to verify their information and notify the department of any errors with the water right.

DNRC Has Not Established Consistent, Formalized Outreach With Owners or Property Entities

DNRC has not established nor implemented an ongoing public outreach process to help owners and realty entities understand water rights. Regional offices will inconsistently reach out to these entities if there are repeated issues on submitted forms, but there is no formal process for this outreach. DNRC has instead focused on catching water right transfers through its cooperation with the Department of Revenue to track property transfers with water rights. In addition, DNRC does not contact owners outside of application or update processes unless the owner's input is required. Through our survey, we found owners did not always understand their water right information, which undermines DNRC's strategy to rely on owners to notify the department of errors.

Without Formalized Outreach, Water Right Owners May Miss Water Right Transfers or Misunderstand Water Right Information

As discussed earlier, our survey found that over 20 percent of respondents did not know if their water right's priority date, point of diversion, place of use, or geocode was correct. Water right owners who obtained the right when purchasing the property were especially confused about the aspects of the original water right, such as priority date. Some respondents indicated that our survey was the first time they had been reminded of their water right information. Other than verification, owners who do not understand water right processes may forget to notify DNRC about water right transfers or changes. If owners miss submitting a transfer, the ownership information in the WRIS becomes outdated unless the department catches the transfer through its geocoding process. DNRC can catch many transfers through reconciling geocodes with the Department of Revenue, but the department does not catch all ownership changes. Our survey found that around 29 percent of survey recipients had incorrect ownership information, where the listed address resulted in return mail or the respondent indicated the ownership information was incorrect.

Owners, Title Companies, and Realtors That Do Not Understand Water Right Information Create More Work at Regional Offices

Regional offices estimate that 50 percent of applications and updates contain missing or incorrect information. Owners and realty entities who do not understand water right processes will submit incomplete or incorrect information. This is especially clear when required documents or pertinent information are missing from the form. Regional offices will research information with other sources or contact owners to get the information they need. Contacting owners, especially by mail, can delay processing by weeks. In some instances, regional offices can find that a realty entity will consistently provide incorrect information or payment. In these cases, the regional office must repeatedly ask for corrections from the title company.

Regional Offices Can Gain Efficiency Through Education and Outreach

Based on timeliness reports the department presented to WPIC, the Kalispell Regional Office had very efficient processing times in 2019-2020, despite receiving more water rights documents than average. According to these timeliness reports, the Kalispell Regional Office processed water right documents 40-60 percent faster than the regional average. Additionally, this regional office processed the most

ownership updates in 2020. The Kalispell Regional Office cited its continued education and outreach with title companies and realtors as integral to its efficiency. This regional office leveraged a network of realtors and connections with title companies to inform the public about water rights. When an error on a form is noticed for one of these entities, the Kalispell regional office will educate the realtor or title company on the process. When properly educated, these realty entities can provide high quality documents and educate new owners. Other regional offices have been interested in starting this outreach for their regions after seeing its benefits. Based on other states and trends in the past five years, we expect the number of changes, applications, and updates to increase. High efficiency is crucial for regional offices to keep up with this increasing workload.

Owners Want Reminders of Their Water Right Information

Our survey found that around 84 percent of respondents want periodic reminders of their water right information. Most respondents indicated that they would like to be reminded of their information every one to two years. DNRC has not done periodic reminders like this historically. Some respondents indicated that our survey was the first time they had seen their water right information, especially if they were not part of the initial application. Potential reminder methods include mail, email, or an addition to existing documents provided by the department or other agencies. Federal criteria on public involvement support this outreach, emphasizing that the public should be kept informed on the processes they influence.

RECOMMENDATION #2

We recommend the Department of Natural Resources and Conservation establish an ongoing process for outreach and education including:

A. *Developing professional relationships with title companies and realtors to facilitate greater understanding of water right processes and information, and*

B. *Developing a system for owners to sign up for regular reminders regarding their water right information.*

Chapter IV – Updating WRIS Processes

Introduction

Statutorily, DNRC is required to keep a record of water right documents, including all documents filed with water right applications, permits, updates, and changes. Owners have traditionally submitted paper documents for these processes, but DNRC can determine the form of the water right record. Currently, the department physically stores all associated paper water right documents with a private vendor, while also housing electronic water right information in the Water Rights Information System (WRIS). DNRC also scans all paper water right documents so they can be accessed by the WRIS and public query. We found that maintaining both the WRIS and paper record is costly and the paper record is rarely used by stakeholders. We also found that some paper processes used by the department can be updated with an electronic counterpart to increase efficiency for the department and stakeholders. As part of paper processes, DNRC keeps a record of any physical maps included by owners during applications. Internally, though, the department uses a Geographic Information System (GIS) that can be modified to enhance public interfaces. Through implementing and enhancing its electronic processes, DNRC can increase its efficiency, reduce costs, and increase stakeholder satisfaction.

DNRC Maintains a Paper Record and an Electronic Database for Water Right Data

Associated paper forms processed by DNRC are scanned through the records department and uploaded. DNRC can access uploaded files through the WRIS, and the public can access scanned files online. The department then stores all paper files with a private vendor. Files are stored for all 400,000 water rights, with files sometimes containing hundreds of pieces of paper. DNRC stores over 8,000 boxes of physical water right documents with its vendor. The department also currently uses paper forms for applications and updates. Owners submit applications, updates, and changes through the mail or in person at a regional office. DNRC then manually types information from these documents into the WRIS. If information is missing from the form, DNRC will contact owners, perform research if possible, or send a deficiency letter. The form is terminated and won't be processed if the owner cannot complete the information within a certain time frame.

After water right documents have been processed or created by DNRC, they are transferred to the central records department in Helena to be scanned and uploaded. All documents to be uploaded, both electronic and physical, are physically mailed. In some instances, when DNRC creates a large file, such as a water right inspection file, they will copy the information onto a CD and physically send the CD to central records for upload. The records department then prints a cover page with various information about the water right. When uploaded, the scanning software automatically attaches information from the cover page to the file. The records department attaches the water right number, basin, water right type, file type, file size, and scanning date to the uploaded file.

The WRIS Being Declared the Official Record Is Not Widely Understood by Staff

While management believes the WRIS has been declared the official record, program staff did not share this understanding during audit fieldwork. Though the WRIS is used internally and by the Water Court, department staff have historically been hesitant to destroy paper documents after scanning. Regional offices do not trust that scanned documents are complete and are worried that important information will be lost if DNRC relies wholly on the WRIS. However, the records department indicated no complaints about missing scanned documents from regional offices. DNRC also does not track the quality or completeness of scanned documents. Though the WRIS is an electronic database, DNRC has not historically had any electronic applications or updates. Previously, the department started the process for online forms, but electronic signatures and payment processes stalled development. However, the department has found ways to implement payment and signatures since the COVID-19 pandemic. The regional offices and management have expressed interest in developing online applications.

Paper Processes Lead to Increased Costs and Inefficiencies

Storage and transfer costs for DNRC's storage vendor have trended up in the last five years, costing $91,000 in FY2022. We expect these costs to continue increasing if the paper record is maintained. In addition to vendor costs, physical files are susceptible to degradation and damage. Over 50 boxes of water right documents were damaged or destroyed when the private vendor's roof collapsed during a storm in 2019. Also, DNRC adds to department mail costs by using exclusively paper forms. The average mail costs across the Water Rights Bureau and regional offices for the last three years are around $47,000. However, DNRC could not break down these costs for applications and updates. Using paper files also requires DNRC to enter information manually into the WRIS and regional office staff estimate over half of incoming applications and updates are missing information or contain errors. Electronic applications and updates could require applicants to complete the form before proceeding and automatically populate fields in the WRIS.

Shifting to Electronic Processes Is More Efficient and Beneficial

Stakeholders do not rely on the paper record. Less than two percent of respondents in our survey said they request their water right file from DNRC to verify their information. Instead, respondents indicated they rely on their own documents or DNRC's online query system. Additionally, the Water Court supports the WRIS as the official record rather than paper documents. Some states we interviewed keep a paper record but are bound in statute to do so. The states not bound by statute typically destroy paper files after scanning, though these states may keep specific documents, such as old maps. Montana requires that, before destruction, records must first be offered to archival with the Historical Society. For electronic form submission, Federal code requires that all federal paper forms should have an electronic counterpart. Other states are also generally adding and transitioning towards electronic document submission. From our survey, we found that between 20 and 30 percent of respondents would prefer an online form for water right applications and updates. For water right searches, the WRIS can be queried over the internet, whereas the paper files must be requested from DNRC's vendor and can take a couple of days to arrive. Besides form submissions, 30 percent of survey respondents indicated they would prefer other contact methods than mail regarding their water right.

Recommendation #3

We recommend the Department of Natural Resources and Conservation establish the Water Rights Information System as the official record and transition to electronic processes by:

A. *Ensuring historical documents are scanned at acceptable quality.*

B. *Creating an online submission option for all applications and updates.*

C. *Tracking additional owner contact information electronically such as e-mail address, phone number, etc.*

The Department Has Expressed Concerns Changing the Scanning Process

DNRC staff have been hesitant to add additional information to scanned documents or establish a means of electronic transfer for uploaded documents. We determined the department is capable of both, though management indicated there may be technology challenges when updating the scanning process. In the past, the department used about 20 file types but cited confusion about which labels were assigned to each document type. If the record type required changing, the department had to re-scan the document with a new label. Therefore, the records department drastically reduced the number of file types, generally using two categories: "file" for the original upload with the application and "update to file" for future updates such as ownership updates. The department organizes files by scan date and only includes the file type with few categories as an identifier of documents in the scanned files.

Initially, the department indicated they could not upload electronic files to the WRIS. Instead, they could only upload from scans, DVDs, CDs, or flash drives. However, the records department later showed they were able to upload files from an electronic transfer. They shy away from electronic transfers, such as email, saying documents can be difficult to track or identify when they are ready for scanning. We determined there are methods for electronic transfer that could alleviate these concerns. For example, the department can establish a secure, shared folder where documents are placed when they are ready to be uploaded to the WRIS.

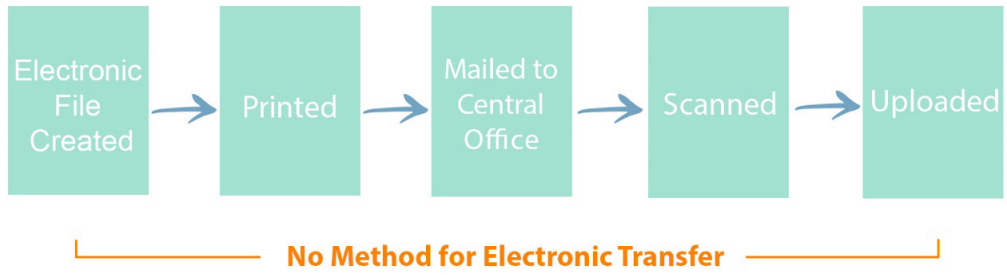
The Processes for Uploading Documents Result in Stakeholder Difficulty and Unnecessary Costs

Stakeholders have cited difficulty using uploaded documents. The Water Court often uses scanned files in the WRIS for adjudication processes. The court said uploaded documents are not easy to search, specifically citing a lack of identifying or organizing information. The lack of organization can also slow regional office processes since regional offices often refer to scanned documentation. Additionally, the court must print and mail electronic documents to the records department. The printed electronic files are then scanned back into an electronic form. This method incurs unnecessary costs and lowers the quality of uploaded documents. This issue is not limited to the Water Court. DNRC must also

physically transfer electronic documents internally since no process has been established for electronic transfer of documents to the records department. Figure 7 shows the current process for uploading electronic files to the WRIS.

Figure 7
Current File Transfer

For upload to the WRIS, DNRC does not have a process to directly transfer electronic files internally from regional offices or from the Water Court.



Source: Compiled by the Legislative Audit Division.

Establishing a method for electronic transfer would streamline this process, reducing the cost of sending documents in the mail and maintaining the quality of electronic files when uploaded.

Modern Practices Highlight the Importance of Electronic Transfer and Identifying Information

Industry standards, Montana's Operational Manual, and other states emphasize the importance of expanding identifying information for uploaded documents to support organization needs. Identifying information cited in these criteria often include document type and organizational information. Other states use more identifying information for their publicly available documents. They design the interface and organization of uploaded documents for ease of use by stakeholders. Other states also find the identifying information useful for internal processes. For transferring files internally, it is modern state practice to transfer these documents electronically when possible.

RECOMMENDATION #4

We recommend the Department of Natural Resources and Conservation make scanned documents and their processes more functional by:

A. *Establishing an electronic means to transfer documents for upload, both internally and from the Water Court, and*

B. *Attaching additional labelling and identifying information to uploaded documents.*

The Department Uses Maps Throughout the Application Process

For applications, water right owners must submit the associated Public Land Survey System quarter sections associated with the place of use and point of diversion. Owners can also submit paper maps with their water right applications, but this is not always required. DNRC references maps during the application process to verify locations, and then scans any physical maps into the WRIS when finished. Consultants, the Water Court, and owners can then reference these scanned maps. DNRC's online water right query system can generate a map for a water right in the system. However, there is not a map interface to search for water rights. Instead, owners must search via quarter sections or source name.

DNRC Uses Quarter Sections to Identify Point of Diversion and Place of Use for Water Rights

Administrative rule specifies that quarter sections describe the point of diversion and place of use. However, DNRC can also use other identifiers in addition to quarter sections. Quarter subsections are square, usually encompassing 10-40 acres, and can overlap with multiple properties when marked on a map. In some cases, the department will use smaller quarter subsections of 2.5 acres. DNRC compares these quarter subsections with property boundaries to assign geocodes to a water right. Sometimes, the department cannot validate a geocode from these quarter sections alone and requires additional information. Additional information, such as latitude and longitude, can be helpful in these instances, but the department inconsistently adds identifiers like these to water right locations.

DNRC Previously Developed, but Discontinued, GIS Applications for Stakeholders

Chapter 323 of the 2013 Regular Legislative Session and Chapter 338 of the 2017 Regular Legislative Session enabled owners to claim older water rights for wells, preserving the original priority date. Owners had until 2019 to claim their older wells. In response, DNRC developed a public-facing GIS application so owners could click a point on a GIS map that would automatically populate with the correct quarter sections. Owners could then print this map and it to send to DNRC. However, after the deadline, DNRC discontinued using this public-facing GIS application and did not expand its uses into other public interfaces. However, new leadership has expressed interest in developing electronic mapping further.

Relying on Scanned Maps and Quarter Sections Creates Confusion for Stakeholders

Our file review found that between 10 and 20 percent of all water rights have a scanned map in the WRIS where we could not identify the place of use or point of diversion due to poor scan quality. While the records department now has a color scanner, they previously scanned maps in black and white. In many cases, locations indicated in color would not be identifiable when scanned in black and white. The records department will re-scan old maps on request, which requires transferring the map from their storage vendor. Electronic maps are not affected by scanning quality and can be accessed online without a transfer delay. In addition, we found between 20 and 25 percent of survey respondents

do not understand locations on their water right. Some respondents specifically cited the quarter section locations as confusing. This owner confusion on water right locations could undermine quality assurance efforts or DNRC processes that use water right locations.

Maps and Additional Identifying Information Benefit Stakeholders

When visiting water rights, we used maps from DNRC's query system to facilitate conversations with owners about their information in the WRIS. These maps were beneficial in identifying locations, as well as finding errors. DNRC's current use of quarter sections in place of maps reduces the precision of water locations. For the point of diversion, owners would often mark a specific spot, which we could then identify with coordinates from online mapping software. Currently, owners cannot refine their point of diversion beyond quarter sections and are limited to marking an area of at least 2.5 acres, creating ambiguity for where water is diverted. During site visits, owners would also outline the place of use for water rights, which was not always apparent from the quarter section alone. For instance, a domestic well could be used for a main house and guest house. The guest house may not be captured by the quarter section for the main house. For both the point of diversion and place of use, we found owners could refine the locations through a map and increase the precision of water right locations.

Other States and DNRC See Benefits from GIS Integration

Other states, such as Washington, Utah, and Colorado, use a GIS application for their water rights query so owners can search water rights on a map. In conjunction with using a public facing GIS application, other states collect additional information, such as Global Positioning System (GPS) coordinates or latitude/longitude for the point of diversion and place of use. In many cases, these additional identifiers are used before the legal land descriptions from the Public Land Survey System. Some other states use these additional identifiers to enhance the precision of their GIS interface. These states indicate that these additional identifiers are beneficial internally and for stakeholders. Within DNRC, the internal GIS application is integral to processing water rights and determining locations. During regional office interviews, most management and staff indicated they would like to expand GIS integration. Specifically, staff and management think that GIS integration in online applications and having owners identify locations by aerial photo would be beneficial. Besides regional offices, DNRC's Water Plan recommends developing interactive applications, developing maps, and updating the identifiers for point of diversion and place of use from quarter sections.

Program Staff Indicate that Implementing a GIS Application Is Cost Effective

When speaking to program staff involved in the implementation of the public GIS interface, we found that the application was cost effective to develop and implement. Program staff indicated that the application was quick to develop since DNRC already uses a GIS application internally. It is easy to modify the current internal application for other uses and interfaces. Staff also believe updating or refining quarter sections would support stakeholder understanding and streamline DNRC processes. Overall, program staff indicated GIS integration for electronic applications or updates to the query system would be cost-effective and enhance WRIS processes.

RECOMMENDATION #5

We recommend the Department of Natural Resources and Conservation integrate GIS functionality for stakeholders by:

A. *Introducing a map interface for electronic applications and queries, and*

B. *Using additional identifiers for the place of use and point of diversion.*

Department of Natural Resources and Conservation

Department Response

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RE: Department of Natural Resources and Conservation Written Responses to the Legislative Audit Division Performance Audit of the Data Quality in the Water Rights Information System

Mr. Maciver:

The Department of Natural Resources and Conservation (DNRC) and the Water Resources Division appreciates the opportunity to respond to Performance Audit 21P-01. We have reviewed the recommendations set forth in this report and have provided our responses on behalf of the Department below.

RECOMMENDATION #1

We recommend the Department of Natural Resources and Conservation establish and implement a data quality strategy for the Water Rights Information System that defines desired levels for data quality that are regularly evaluated.

Response: Concur

Corrective action: The Water Resources Division will identify which data are most appropriate for evaluation and develop a plan to implement this recommendation. Data to be evaluated will be identified using the findings of the audit in conjunction with stakeholder feedback that has been received and internal feedback on areas where data quality is lacking. The Division will also review existing public guidance and methods of collecting data to determine if improvements can be made.

RECOMMENDATION #2

We recommend the Department of Natural Resources and Conservation establish an ongoing process for outreach and education including:

A. Developing professional relationships with title companies and realtors to

facilitate greater understanding of water right processes and information, and

B. Developing a system for owners to sign up for regular reminders regarding their water right information.

Response: Concur

Corrective action: The Water Resources Division intends to take multiple steps to address the recommendations. To develop professional relationships with title companies and realtors, the Water Rights Bureau will take the existing model of training provided to title companies and realtors by the Kalispell Regional Office and implement it throughout the state. The Division also recognizes the website needs improvement. As part of the Department's website redesign efforts, work is being done to specifically update the website to be better organized, provide clear information, and identify resources for water users. To increase outreach to water rights owners and stakeholders, the Division has generated an email sign up to receive notification when important meetings or changes are coming out related to water rights. This email list is already active, but the Water Rights Bureau is also evaluating the benefit of creating a mailing encouraging water rights owners to check the information on their water rights, including mailing address, to ensure that water rights are up to date. This mailing would be sent in paper form since many water users do not use email. The mailing would likely go out in fiscal year 2024 due to costs associated with a mailing of this size. Furthermore, the Water Resources Division is creating a Water Planning, Implementation, and Communications Bureau which will ensure continued improvement in providing information and education to stakeholders.

RECOMMENDATION #3

We recommend the Department of Natural Resources and Conservation establish the Water Rights Information System as the official record and transition to electronic processes by:

A. Ensuring historical documents are scanned at acceptable quality.

B. Creating online forms for all applications and updates.

C. Tracking owner contact information electronically such as e-mail address, phone number, etc.

Response: Conditionally Concur

Corrective action: There has been some internal confusion on if the Water Rights Information System (WRIS) is the official record. The Division will clarify with all staff that WRIS is the official record. The Water Resources Division will work with SITSD and DNRC OIT to evaluate existing technology and software, identify any additional needs, and develop a plan to transition to a fully digital record and create online forms for applications which directly upload to the database. The Department will further analyze the need for additional resources to fully concur with and implement this recommendation. DNRC deployed a new WRIS interface in April of this year. Entry of electronic contact information was made a priority in this new interface and staff have been encouraged to enter this information whenever it is available.

RECOMMENDATION #4

We recommend the Department of Natural Resources and Conservation make scanned documents and their processes more functional by:

A. Establishing an electronic means to transfer documents for upload, both internally and from the Water Court, and

B. Attaching additional labelling and identifying information to uploaded documents.

Response: Conditionally concur

Corrective action: The Water Resources Division will work with DNRC OIT to understand what is necessary to fully execute this recommendation. One potential issue that would need to be addressed with this recommendation is that currently a PDF is created that contains multiple water rights. To accommodate the recommended change, technology is needed to separate the document on the correct page and name the files appropriately for uploading electronically into FileNet. There are concerns regarding whether this technology exists to separate a PDF in the middle of a page as well as name it correctly or add additional information/data to the document. The Water Court uploads their case files to FullCourt, which is a subscription-based software used for managing court cases. To improve electronic document labelling, data fields, and completeness through the inclusion of Water Court documents, further conversation and technology review would need to take place with multiple parties before a conclusive answer can be given.

RECOMMENDATION #5

We recommend the Department of Natural Resources and Conservation integrate GIS functionality for stakeholders by:

A. Introducing a map interface for electronic applications and queries, and

B. Using additional identifiers for the place of use and point of diversion.

Response: Concur

Corrective action: The Department concurs with this recommendation. The Water Rights Query System is scheduled to be overhauled starting January 2023 and the Water Resources Division sees value in implementing this recommendation as part of the query system overhaul. In order to implement the recommendation, further engagement between DNRC OIT and Water Resources Division leadership is needed to develop a project plan and implementation strategy before specific timelines for implementation can be set.

We want to thank you and your staff for their professionalism and engagement with the DNRC and Water Resources Division staff during the audit. We appreciate the time dedicated to developing a thorough understanding of our existing processes as well as your willingness to discuss the

recommendations of the audit. We look forward to implementing the recommendations made to improve our processes and services for stakeholders across Montana.

Sincerely,

Amanda Kaster

Amanda Kaster
DNRC Director